

REMARKS

Withdrawal of the final rejection, entry of the above amendments, and favorable reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Claims 1-18 remain pending and claim 19 is added.

Claim 15 is amended to correct “contaminating” thereby eliminating the basis for objection.

Claims 17 and 18, are amended to overcome the indefiniteness rejections by clarifying that the amount of phenyl acetylene is after hydrogenation (see, page 6, lines 1-3). No change in scope and no new matter is inserted and no new issues are raised.

Accordingly, the rejection under 35 USC 112, second paragraph, is respectfully traversed and/or avoided.

Claim 14 is rejected under 35 USC 112, first paragraph. It is asserted that the “subject matter ... was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the specification was filed, had possession of the claimed invention. The limitation that the hydrogenation can be carried out for at least about 100 days without regeneration of the catalyst is new matter. The examples provide support of specific times on stream but do not provide support for the entire range of 100 days or more.”

Applicants respectfully disagree.

The examples not only show times on stream of 100 days but also substantially longer times, e.g., 220 days, without any indication that this time represents a maximum time beyond which regeneration is required. Therefore, one skilled in the art reading the specification would understand that Applicants were in possession of the invention as claimed.

Nevertheless, to expedite prosecution, but without any intent to reduce the scope of Applicants’ invention, claim 14 is amended to recite “up to about 100 days.” Moreover, for even more specific emphasis, new claim 19 is directed to the case where the process further comprises carrying out the hydrogenation reaction for up to about 220 days without regeneration of the catalyst. Since this subject matter is explicitly included within the scope of claim 14 the presentation of the additional claim does not raise any issue requiring further consideration or search and does not raise an issue of new matter.

The rejection of claims 1-12, 14, 17 and 18, under 35 USC 103(a) as unpatentably obvious over Gattuso, US 4,734,540, (‘540), is respectfully traversed for the following reasons.

As noted from the above amendments, claim 1 recites that the nickel catalyst is "sulfur-free." Support for this limitation is at least found in the examples. In addition, one skilled in the art would recognize that Applicants were in possession of this invention in view of the disclosure on page 4, lines 11-12. That is, since the disclosure on page 4 is that the "catalyst can also be modified with sulfur-containing compounds" the practitioner would understand that Applicants, as evidenced by the examples, were in possession of the invention using a "sulfur-free nickel catalyst," i.e., without addition of sulfur-containing compounds.

In the present invention, as seen from the working examples, excellent selective hydrogenation of the phenyl acetylene is achieved using the supported nickel catalyst without further modifying component, including with sulfur-containing compounds.

However, according to the disclosure of '540 it is essential that small amounts of sulfur also be present in or on the supported nickel catalyst.

Therefore, it would not have been obvious or expected that the supported nickel catalyst in the process of the present invention would be effective in the absence of sulfur, for example, remain effective for upwards of 100 to 200 days or more, without adversely or substantially adversely effecting the hydrogenation activity and, then, relatively easily regenerated. The disclosure in '540 (see Figs. 1 and 2) shows activity for less than 120 hours (measured starting from 552 hours on-stream). Therefore, including the on-stream time, the patentees only show performance of the catalyst for less than 30 days. Nor do the patentees suggest that the catalyst, after decline in activity, may be easily regenerated.

Therefore, in view of all of the above differences, the process as disclosed and claimed herein would not have been obvious over '540.

Still further, with regard to claims 17 and 18, it is respectfully submitted that one of ordinary skill in the art would not conclude from the disclosure of Gattuso (where "substantially free" means less than 1000 ppm) that the patentee's process would be effective to provide an amount of phenyl acetylene in the styrene-containing medium, of not less than 100 ppm or less than 10 ppm.

Therefore, withdrawal of the rejection of claims 1-2, 14, and 17-18, as unpatentably obvious in view of Gattuso, is requested.

Regarding the rejection of claims 13, 15 and 16, under 35 USC 103(a), as being unpatentable over Gattuso, further in view of Barry (2,511,453), it is respectfully submitted that none of these claims would have been obvious based on this combination of references.

For claim 13, even if one skilled in the art would have been motivated to include an additional metal, such as gold or chromium, with the Gattuso nickel catalyst, the catalyst would still include the essential sulfur-containing compound. Therefore, the Examiner errs in finding claim 13 to have been *prima facie* obvious over Gattuso in view of Barry.

Similarly, for claims 15 and 16, one skilled in the art would not be able to combine these disclosures to arrive at the present invention. Even applying the regeneration of Barry to the process of Gattuso would not result in the process as claimed.

Accordingly, this ground of rejection should also be withdrawn.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the Examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Attached is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned **“Version with markings to show changes made”**.

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

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Enclosure: Appendix

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Amended) Process for the hydrogenation of phenyl acetylene in a styrene-containing medium with the aid of a catalyst and in the presence of hydrogen gas, wherein the catalyst is a sulfur-free nickel catalyst with a nickel content of 10-25 wt.%, supported on a carrier material and [in that] wherein the hydrogen gas/phenyl acetylene molar ratio is 1-10.

14. (Amended) Process according to claim 1, which further comprises carrying out the hydrogenation reaction for [at least] up to about 100 days without regeneration of the catalyst.

15. (Amended) Process according to claim 1, which further comprises regenerating the catalyst after it becomes [contaminating] contaminated resulting in a decline in hydrogenation activity.

17. (Amended) Process according to claim 1, wherein the amount of phenyl acetylene in the styrene-containing medium following hydrogenation, is less than about 100 ppm.

18. (Amended) Process according to claim 1, wherein the amount of phenyl acetylene in the styrene-containing medium following hydrogenation, is less than about 10 ppm.

Claim 19 is added.

End of Appendix